



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/514,748	02/28/2000	Jerry Harris	07844-408001	9319

21876 7590 09/30/2003  
FISH & RICHARDSON P.C.  
500 ARGUELLO STREET  
SUITE 500  
REDWOOD CITY, CA 94063

EXAMINER

PATEL, KANJIBHAI B

ART UNIT	PAPER NUMBER
----------	--------------

2625

DATE MAILED: 09/30/2003

8

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	09/514,748	HARRIS, JERRY
	Examiner	Art Unit
	Kanji Patel	2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) Responsive to communication(s) filed on 13 June 2003.

2a) This action is FINAL.                    2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) Claim(s) 1-37 is/are pending in the application.

4a) Of the above claim(s) 31-37 is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 1-30 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some \* c) None of:

1. Certified copies of the priority documents have been received.

2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.

3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) Notice of References Cited (PTO-892)                    4) Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_ .

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)                    5) Notice of Informal Patent Application (PTO-152)

3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ .                    6) Other: \_\_\_\_\_

## **DETAILED ACTION**

1. Applicant's election without traverse of Group I (claims 1-30) in Paper No. 7 is acknowledged.

### ***Drawings***

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "424" has been used to designate both video display and modem in figure 4. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Specification***

3. The disclosure is objected to because of the following informalities:  
Page 7, line 27, change "112" to --412--.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 1, 5-19, 22-26 and 29-30** are rejected under 35 U.S.C. 102(b) as being anticipated by Harrington et al. (hereinafter Harrington) (US 5,737,455).

**For claim 1,** Harrington discloses a method for processing a digital image comprising:

generating a set of subpixel data values as a function of pixel data of a digital image (figure provides a pixel data and figures 5-6 provide generation of subpixels in between pixel data);

mapping each of the subpixel data values to a new subpixel data value ( at least in figure 6, subpixel values are assigned for example  $(A + D)/2$ ,  $(D + F)/2$ ,  $(A + B + D + X)/4$ ... provide a new subpixel values after mapping) ; and

adjusting the pixel data of the digital image according to the new subpixel data values ( steps 330, 332 in figure 9 provide average shade value of subpixel which reads on adjustment ; see also column 3 line 61 to column 4 line 2).

**For claim 5**, Harrington discloses the method wherin mapping of subpixel data values includes the subpixel data values according to a user-defined curve for shaping the digital image (210 in figure 8 and 308; also see column 5, lines 44-64).

**For claim 6**, Harrington discloses the method further including applying an image processing operation to the new subpixel data (figures 8-9; column 5, lines 44-64).

**For claim 7**, the image processing operation is a shading operation which is provided by Harrington at least in (figures 8-9; column 5, lines 44-64).

**For claim 8**, Harrington discloses the method, wherein applying the image processing operation includes iteratively processing the new subpixel data values (at least the last step "Next pixel " in figure 9 provides iteration; column 9, line 43).

**For claim 9**, Harrington discloses the method, wherein the set of subpixel data values are generated using pixel data produced by an image processing operation

(shading), wherein the pixel data has an integer component (column 10, line 47) and a fractional component (column 6, lines 43-67).

**For claim 10,** harrington discloses the method, wherein generating a set of subpixel data values includes generating at least one two-dimensional array of subpixel data values (figure 6).

**For claim 11,** Harrington discloses the method, wherein generating at least one two-dimensional array includes generating an array having three columns and three rows (figure 4).

**For claim 12,** Harrington discloses the method, wherein generating at least one two-dimensional array includes generating a plurality of subpixel arrays for each pixel and adjacent pixels of the digital image (at least figure 6).

**For claim 13,** Harrington discloses, the method, wherein generating a set of subpixel data values includes:

generating a plurality of sets of subpixel data values (figure 6);  
selecting one new subpixel data value from each set and applying an image processing operation to the selected new subpixel data values (figures 8-9); and

repeating iteratively (column 9, line 43) the selection of the new subpixel data values from the sets and the application of the image-processing operation until all of the new subpixel data values have been processed (figures 8-9).

**For claim 14,** Harrington discloses, the method wherein adjusting pixel data of the digital image includes updating the pixel data with an average of the new subpixel data values (at leas 330 and 332 in figure 9 provide average value).

**For claim 15**, Harrington discloses the method, wherein the average of the new subpixel data values is a weighted average (330, 332 in figure 9).

**For claim 16**, Harrington discloses the method further including examining the pixel data values to determine whether to generate subpixel data values for a corresponding pixel data value (figures 8-9).

**For claim 17**, Harrington discloses the method, wherein adjusting pixel data of the digital image includes updating the pixel data with an integer value calculate from the new subpixel data values (column 10, line 47; figure 9).

**For claim 18**, Harrington discloses the method wherein the digital image is a digital matte (figure 4) and the method reduces aliasing artifacts ( at least title) in the digital image by generating the set of subpixel data values (figures 4-6) as an array of subpixel data and mapping the subpixel data values to the new subpixel data values by interpolating (figures 8-9) between elements of a lookup table representing a user-defined curve.

**For claim 19**, see the rejection of claim 1 above.

**For claim 22**, see the rejection of claim 6 above.

**For claim 23**, see the rejection of claim 8 above.

**For claim 24**, Harrington discloses the computer program product, wherein the programmable processor generates the set of subpixel data values by generating a plurality of sets of subpixel data values (figures 4-6);

selecting one new subpixel data value from each set and applying an image processing operation to the selected new subpixel data values (figures 8-9); and

repeating iteratively (column 9, line 43) the selection of the new subpixel data values from the sets and the application of the image-processing operation until all of the new subpixel data values have been processed (figures 8-9).

**For claim 25**, Harrington discloses the computer program product, wherein the programmable processor reduces aliasing artifacts (title) in the digital image by generating the set of subpixel data values (figures 4-6) as an array of subpixel data and mapping the subpixel data values to the new subpixel data values by interpolating (figures 8-9) between elements of a lookup table representing a user-defined curve.

**For claim 26**, see the rejection of claim 1 above. To reduce aliasing artifacts when shaping a digital image is provided by Harrington at least in column 8, lines 26-46.

**For claim 29**, see the rejection of claim 6 above.

**For claim 30**, Harrington discloses the system wherein the digital image is a digital matte (figure 4 is a small digital image or matte).

#### ***Claim Rejections - 35 USC § 103***

**45.** The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 2-4, 20-21 and 27-28** are rejected under 35 U.S.C. 103 9a) as being unpatentable over Harrington et al. (US 5,737,455) as applied to claims 1, 5-19, 22-26 and 29-30 above and further in view of Brusewitz (US 5,504,849).

**For claim 2,** Harrington teaches the mapping of the subpixel data but he does not clearly disclose that the mapping the subpixel data includes processing each of the subpixel data values with a lookup table to generate the new subpixel data values. However, Brusewitz discloses a method of moving a pixel a subpixel distance comprising that mapping of the subpixel data includes processing each of the subpixel data values with a lookup table (column 3, lines 9-10) to generate the new subpixel data values. Therefore, it would have been obvious to one of ordinary skill in the art to have modified Harrington wherein mapping of the subpixel data includes processing each of the subpixel data values with a lookup table to generate the new subpixel data values. It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Harrington by the teaching of Brusewitz in order to fast retrieval of coefficients for all possible values of the fractional parts of the new pixel values as shown by Brusewitz in column 3, lines 8-9 and column 2, lines 11-32.

**For claim 3,** see the rejection of claim 2 above. For each subpixel, deriving of shade value by linear interpolation is also provided by Harrington in figure 9.

**For claim 4,** see the rejection of claims 2-3 above. Replacement values are provided by coefficients in Brusewitz.

**For claim 20,** see the rejection of at least claims 2-3 above.

**For claim 21,** see the rejection of claim 3 above.

**For claim 27,** see the rejection of claim 20 above.

**For claim 28,** see the rejection of claim 3 above.

**Other prior art cited**

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Lewis (US 6,285,348 b1) discloses a method and system for providing implicit edge antialiasing.

Kuchkuda et al. (US 5,872,902) disclose a method and apparatus for rendering of fractional pixel lists for anti-aliasing and transparency.

Tse et al. (US 5,655,061) disclose a system and method for providing a high addressable printing system.

Orlicki et al. (US 5,825,399) discloses a data-dependent thermal compensation for an led printhead.

Barkans (US 6,057,855) discloses a method and apparatus for providing polygon pixel sub-sample information using incremental means.

Thompson, Jr. et al. (US 6,129,457) disclose a resolution enhancement for a digital printing apparatus.

Koshak (US 5,506,693) discloses an addressing mechanism for interfacing spatially defined imagery data with sequential memory.

Tucker et al. (US 5,926,406) disclose a system and method for calculating floating point exponential values in a geometry accelerator.

### Contact information

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kanji Patel whose telephone number is (703) 305-4011. The examiner can normally be reached on 8:00 to 6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (703) 308-5246.

The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-0377.



Kanji Patel  
Art Unit 2625  
September 21, 2003